

EP486 Microcontroller Applications
Second Midterm Exam Question
Gaziantep University, Department of Engineering of Physics

Select one of the following questions.

Question 1

Develop an experimental kit for measuring Planck's constants using an Arduino Board.

You should use at least 3 LEDs with different colors and Processing programming language. Imagine.

See also:

<http://www.scienceinschool.org/2014/issue28/planck>

http://www.tevlin.ca/roberta/QM/LED%20and%20h/PI_MeasPlancks_Final_Vrsn.pdf

Question 2

By using an Arduino board, design and construct a speedometer for a bicycle.

- You must use 4x7 segment display.
- You must have a push button to show speed in m/s or km/h
- Speedometer must show numbers for your RFID card only.

Question 3

By using an Arduino board, design and construct a car park sensor.

- Develop an IR range finder which must work for the range [10 cm, 100 cm].
- The Arduino must sound as in the real life.

Question 4

By using two Arduino boards, develop a chat program based on C++ to communicate optically two computers through serial port of Arduinos. The program(s) must work up to 5 meters.